PATENT ABSTRACTS OF JAPAN

(11)Publication number : 10-035133
(43)Date of publication of application : 10.02.1998

(51)Int.Cl. B41N 3/03

(21)Application number : 09-000749
(22)Date of filing : 07.01.1997

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(30)Priority
Priority number : 08130106 Priority date : 24.05.1996 Priority country : JP

(54) MANUFACTURE OF SUPPORT FOR LITHOGRAPHIC PLATE

(57)Abstract:
PROBLEM TO BE SOLVED: To further improve the properties of difficulty to interlock by further enhancing water retention characteristics beyond the current level in a method for manufacturing a support for lithographic plate.
SOLUTION: This method for manufacturing a support for a lithographic plate is to repeatedly perform an electrolytic surface roughening process to an aluminum support in an acid electrolytic solution, introducing an aluminum etching process between the steps of the former. In this method, the average diameter of a pit formed by a first electrolytic surface roughening step is set to 2–25 μ m and the average diameter of the pit formed by a following electrolytic roughening step is set to 1/2 or less or 1/30 or more of the average diameter of the pit formed by the preceding electrolytic surface roughening step. In this case, the acid electrolytic solution for the electrolytic surface roughening process is an aqueous solution composed mainly of nitric acid. Further, the variation of the pit diameter can be controlled by differentiating the electrolytic solution temperature, concentration, current density, power supply frequency, power supply waveform and ratio of forward/reverse current times of the following step from those of the preceding step.

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CLAIMS

[Claim(s)]
[Claim 1] In the manufacture method of the base material for the printing versions which performs electrolysis split-face-ized processing in the middle repeatedly on both sides of etching processing of aluminum for an aluminum plate in the acid electrolytic solution The manufacture method of the base material for the lithography versions characterized by making the diameter of an electrolysis split-face-ized average pit of a back process into 1/2 or less [of the diameter of an electrolysis split-face-ized average pit of a last process], and 1/30 or more, using the diameter of an electrolysis split-face-ized average pit of the 1st process as 2 micrometers - 25 micrometers.
[Claim 2] The manufacture method of the base material for the monotonous printing versions according to claim 1 characterized by the aforementioned acid electrolytic solution for electrolysis split-face-ized processing being the solution which makes a nitric acid a subject.
[Claim 3] Before the formation of an electrolysis split face of the 1st process, it is the formation of a mechanical split face, 0.1-30/m2 to an aluminum plate. Chemical etching processing is performed. It is 50 - 600 c/dm2 in the electrolytic solution which includes electrolysis split-face-ization of this 1st process for a 10-50-degree C nitric acid. It carries out. Before the formation of an electrolysis split face of a back process, it is 0.1 - 20 g/m2. Chemical etching processing is performed. It is 10 - 200 c/dm2 in the electrolytic solution which includes electrolysis split-face-ization of this back process for a 35-80-degree C nitric acid. It carries out. after the formation of an electrolysis split face of a back process Chemical etching processing of 0.01 - 2 g/m2, The manufacture method of the base material for the monotonous printing versions according to claim 1 characterized by performing anodizing.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] this invention relates to the manufacture method of the base material for the printing versions which consists of a split-face-ized aluminum plate of being suitable for especially offset plates, about the manufacture method of the base material for the printing versions. Moreover, this invention relates also to the manufacture method of the base material for the lithography versions which was excellent in the difficulty of being involved, and the difficulty of becoming dirty, and was excellent also in print durability.
[0002]
[Description of the Prior Art] As the base material for the printing versions, especially a base material for offset plates, the aluminum plate (an aluminium alloy board is included) is used. In order to use an aluminum plate as a plate for offset printing (base material) generally, it is required to have a moderate adhesive property and moderate water retention with sensitization material. For that, you have to split-face-ize the front face of an aluminum plate so that it may have a uniform and precise grain. Since it has remarkable influence on the printing performance and print durability of a plate when this split-face-ized processing actually performs offset printing after platemaking, the quality serves as an important element on plate manufacture. Generally as a split-face-ized method of the aluminum base material for the printing versions, the alternating-current-electrolysis etching method is adopted, and special police box wave current, such as sine-wave-alternating-current current ordinary as current and a square wave, is used. And by making suitable electrodes, such as a graphite, into a counter electrode, split-face-ized processing of an aluminum plate is performed and it is usually carried out by alternating current by one processing. Then, on the whole, the thinness of the pit obtained was shallow, and was a thing inferior to print durability ability. For this reason, many methods are proposed so that an aluminum plate suitable as a base material for the printing versions which has the grain in which the pit where the depth is deep exists uniformly and precisely as compared with the diameter may be obtained. As the method, the combination (JP,56-29699,A) of the ratio (JP,54-65607,A) of quantity of electricity at the time of the anode plate at the time of the formation of the electrolysis split face using the alternating current and cathode, a power supply wave (JP,55-25381,A), and the amount of energization per unit area etc. is known. Moreover, JP,57-16918,B is known as a method which combined the mechanical split-face-ized method and the electrolysis split-face-ized method. Furthermore, the manufacture method (JP,7-29507,B) of the aluminum base material for the printing versions characterized by performing electrolysis split-face-ized processing in the middle repeatedly on both sides of etching processing of aluminum for an aluminum base material in the acid electrolytic solution again is indicated.
[0003]
[Problem(s) to be Solved by the Invention] However, although the performance these methods excelled [performance] in a dirt performance and water resistance was shown, it was inadequate in raising a performance (dirt of the non-picture section of the half-tone-dot section) in the difficulty of being involved by raising water retention.

[0004] The purpose of this invention is by raising water retention further from before to offer the manufacture method of the base material for the printing versions which can raise a performance much more in the difficulty of being involved. Other purposes of this invention are to offer the manufacture method of the base material for the lithography versions which was excellent in the difficulty of becoming dirty with improvement in a performance in the above difficulty of being involved, and was excellent also in print durability.
[0005]
[Means for Solving the Problem] this invention person etc. performs variously dissolution processing of the edge portion of the pit generated by electrification split-face-ized processing as a result of research. By producing the diameter of an electrolysis split-face-ized average pit of 1/2 or less back process of the diameter of a last process electrolysis split-face-ized average pit using an alternating current wave in the electrolytic solution which pulls and continues and contains a nitric acid again, after making an edge front face gently-sloping It discovered that water retention was raised and a performance might be raised much more in the difficulty of being involved, and resulted in this invention. Namely, the above-mentioned purpose of this invention is set to the manufacture method of the base material for the printing versions which performs electrolysis split-face-ized processing in the middle repeatedly on both sides of etching processing of aluminum for an aluminum base material in the acid electrolytic solution. It is attained by the manufacture method of the base material for the lithography versions characterized by making the diameter of an electrolysis split-face-ized average pit of a back process into 1/2 or less [of the diameter of an electrolysis split-face-ized average pit of a last process], and 1/30 or more, using the diameter of the 1st process electrolysis split-face-ized average pit as 2 micrometers - 25 micrometers. In the manufacture method of the above-mentioned base material for the lithography versions furthermore, as a desirable mode Before the formation of an electrolysis split face of the 1st process of the above, to an aluminum plate, the formation of a mechanical split face, 0.1-30/m2 Chemical etching processing is performed. electrolysis split-face-ization of this 1st process It is 50 - 600 c/dm2 in the electrolytic solution containing a 10-50-degree C nitric acid. It carries out. Before the formation of an electrolysis split face of a back process, it is 0.1 - 20 g/m2. Chemical etching processing is performed. It is 10 - 200 c/dm2 in the electrolytic solution which includes electrolysis split-face-ization of this back process for a 35-80-degree C nitric acid. It carries out. after the formation of an electrolysis split face of a back process Chemical etching processing of 0.01 - 2 g/m2, It is the manufacture method of the base material for the monotonous printing versions according to claim 1 characterized by performing anodizing.
[0006]
[Embodiments of the Invention] As for the acid electrolytic solution for electrolysis split-face-ized processing, in this invention, it is desirable that it is the solution which makes a nitric acid a subject. Forming an electrolysis split face in the acid electrolytic solution in this invention is passing alternating current in the electrolytic solution containing a nitric acid between an aluminum plate and the electrode which counters this, and it performs electrolysis split-face-ized processing. In this case, it is the solution which contains a nitric acid in 5-400g/l. as the electrolytic solution, and it is desirable that it is in the range of current density 1 - 200 A/dm2, and 30-80 degrees of solution temperature C. As for the electrolysis split-face-ized processing time, it is desirable that it is in the range for 5 - 90 seconds. Moreover, even if the current wave form used by electrolysis split-face-ized processing is not limited to an alternating current and uses a direct current, it is possible. The alternating current wave used by this invention is current of the wave which is made to change the polarity of positive/negative by turns and is acquired, and the voltage-waveform view is illustrated to drawing 1 and drawing 2 . In drawing 2 , although that to which (a) carried out the sine wave by the sine wave, and (b) carried out phase angle control by the thyristor, and (c) show the power supply wave of a square wave, although the alternating current wave of this invention was described above, they do not restrict it to a power supply wave. Moreover, as the electrolytic solution used for electrolysis split-face-ized processing in this invention, it is not limited to a nitric acid, and the mixed liquor of a hydrochloric acid or a hydrochloric acid, a nitric acid and a nitric acid, and a sulfuric acid may be

used. You may use mixed liquor with a phosphoric acid or a phosphoric acid, a sulfuric acid, or other acids instead of a sulfuric acid in that case.
[0007] In this invention, the thing of the pit which generated the etching processing inserted in the middle of electrolysis split-face-ized processing by electrolysis split-face-ized processing of the preceding paragraph for which especially an edge portion is dissolved is said. As processing conditions, each technique of well-known etching processing can use etching of the aluminum by being immersed, electrolytic polishing in the inside of being immersed [caustic alkali of sodium], a phosphoric acid, or the sulfuric-acid electrolytic solution, etc. for a long time [to an elevated-temperature sulfuric-acid solution]. However, it is necessary to consider before and behind it so that the etching reagent after electrolysis split-face-ized processing and electrolysis split-face-ized processing liquid may not be mixed.
[0008] Although electrolysis split-face-ized processing may be repeatedly performed how many times in this invention, it is desirable on the simplification of a process to consider as 1 time the back once a front on both sides of the etching processing in middle. Repeating electrolysis split-face-ized processing on both sides of etching processing in this invention It is performing electrolysis split-face-ization which passes alternating current between an aluminum plate and the electrode which counters this in the electrolytic solution which contains a nitric acid again after this, for example. in that case as the electrolytic solution It is the solution which contains a nitric acid in 5-400g/l., and, as for the electrolysis processing time, it is [it is desirable that it is in the range of current density 1 - 200 A/dm2 and 30-80 degrees of solution temperature C, and] desirable that it is in the range for 5 - 90 seconds.
[0009] In this invention, the diameter of an electrolysis split-face-ized average pit of the 1st process is set to 2 micrometers - 25 micrometers. With making the diameter of an electrolysis split-face-ized average pit of a back process into 1/2 or less [of the diameter of an electrolysis split-face-ized average pit of a last process], and 1/30 or more In order to put a pit also on many [-fold] as a diameter of the 1st process electrolysis split-face-ized average pit which is specifically a last process 2-25 micrometers is desirable, water retention gets worse in less than 2 micrometers, and the difficulty of becoming dirty becomes poor in 25 micrometers or more. Since the pit formed at the 1st electrolysis split-face-ized process changes a lot at the 2nd electrolysis split-face-ized process and a water retention disposition top becomes impossible when it becomes 1/2 or more as a diameter of the 2nd process electrolysis split-face-ized average pit as a back process By less than 0.1 micrometers, 0.1-8 micrometers is desirable, and print durability changes, if larger than 8 micrometers, it will become dirty, and a sex gets worse. Especially 0.3-5 micrometers are desirable. Under the present circumstances, as etching processing, it is 0.01 - 20 g/m2. It is desirable and is 20 g/m2. If many, water retention will get worse, and it is 0.5 - 10 g/m2. It is especially desirable. Moreover, when performing electrolysis split-face-ization 3 times, as a diameter of an average pit of the formation of the 1st process electrolysis split face which is specifically a last process, 5-25 micrometers is desirable. By 25 micrometers or more, by less than 0.1 micrometers, water retention gets worse in less than 5 micrometers, and the difficulty of becoming dirty becomes poor, as a diameter of the 2nd process electrolysis split-face-ized average pit as a back process, 0.1-8 micrometers is desirable, and if larger than 8 micrometers, the difficulty of becoming dirty will get worse [print durability will get worse, and]. Especially 0.3-5 micrometers are desirable. As a diameter of the 3rd process electrolysis split-face-ized average pit, 0.1-2 micrometers is still more desirable, and especially 0.3-2 micrometers are desirable. As etching processing in that case, it is 0.01 - 20 g/m2 in the middle of the 1st and the 2nd process. It is desirable and is 0.5 - 10 g/m2. Although it is especially desirable, in middle etching processing of the 2nd process and the 3rd process, it is 0.01 - 8 g/m2. Although it is desirable, especially 0.3 - 5 g/m2 is desirable. In this invention, in order to make the diameter of an electrolysis split-face-ized average pit of a back process into 1/2 or less [of the diameter of an electrolysis split-face-ized average pit of a last process], and 1/30 or more, using the diameter of an electrolysis split-face-ized average pit of the 1st process as 2-25 micrometers, it is controllable by electrolytic-solution temperature, concentration, current density, the power line period, the power supply wave, FOADO, the current time ratio of reverse, etc. That is, the concentration which makes electrolytic-solution

temperature of a back process higher than the electrolytic-solution temperature of a last process makes a back process lower than a last process, current density makes a back process higher than a last process, a power line period makes a back process higher than a last process, and, therefore, the current ratio of forward reverse of a current wave form can control a back process easily rather than a last process to make a reverse current ratio high. Thus, the grain of the pit structure more than double which has the pit of the detailed and round shape of a uniform honeycomb in the pit side of a deep grain on the surface of an aluminum plate is generable.

[0010] Thus, the electrolysis-split-face--ization-processed aluminum plate is 0.01 - 8 g/m2 by chemical etching processing if needed in the solution which contains the acid or alkali of room temperature - 90 degreeC according to the method usually used. It is 0.3 - 5 g/m2 desirably. You may perform neutralization processing etc., after **********ing slightly. Slight etching may use the electrochemical technique, such as not only being immersed but electrolytic polishing. Furthermore, the outstanding base material for the printing versions can be obtained. Moreover, even if it carries out, it is not necessary to perform degreasing by the acid or alkali as pretreatment of the formation of an electrolysis split face performed as a conventional method, and washing processing. Like this invention, when not performing etching processing in middle, a grain configuration is complicated and a form is not ready, when after treatment is excluded, it becomes dirty, and a performance falls. By performing anodizing in the electrolytic solution which contains a sulfuric acid or a phosphoric acid according to the usual technique to the split-face board obtained as mentioned above, the base material for the printing versions excellent in a hydrophilic property, water retention, and print durability can be manufactured. Of course, after anodizing, it may be immersed into the solution containing sodium silicate etc., and hydrophilicity-ized processing may be performed.

[0011] Moreover, this invention is not restricted only to the aforementioned method, but after the formation of a mechanical split face, etching processing, and a desmut treatment, even if it repeats electrolysis split-face-ization and performs it, the same result is obtained. The surface roughness Ha of a bird clapper after the formation of a back process electrolysis split face is desirable 0.5 to 1.5 times to Ha after the formation of a last process electrolysis split face, and etching processing, and especially 0.8 to 1.2 times of this invention are desirable. Moreover, less than 80% and a bird clapper have a desirable rate of un-etching after each formation of an electrolysis split face, and especially less than 50% is desirable. The electrolysis method by this invention is applicable to both a batch process a half-continuous magnetization method and a continuous magnetization method. In this invention, as a desirable mode which manufactures the above-mentioned aluminum base material for the lithography versions As described above, to an aluminum plate before the formation of an electrolysis split face of the 1st process of the above The formation of a mechanical split face, 0.1-30/m2 Chemical etching processing is performed. electrolysis split-face-ization of this 1st process It is 50 - 600 c/dm2 in the electrolytic solution containing a 10-50-degree C nitric acid. It carries out. Before the formation of an electrolysis split face of a back process, it is 0.1 - 20 g/m2. Chemical etching processing is performed. It is 10 - 200 c/dm2 in the electrolytic solution which includes electrolysis split-face-ization of this back process for a 35-80-degree C nitric acid. It carries out and is 0.01 - 2 g/m2 after the formation of an electrolysis split face of a back process. Chemical etching processing, It is the manufacture method of the base material for the monotonous printing versions according to claim 1 characterized by performing anodizing. Although there is split-face-ization by an imprint, the brush, liquid honing, etc. as formation of a mechanical split face, split-face-izing with a brush is common. As split-face-izing with a brush, split-face-ization by the wire brush besides split-face-izing which a nylon brush depends can also be performed. In addition, print durability can be raised if mechanical split-face-ization is performed. the solution of an acid or alkali performs chemical etching processing performed after the formation of a mechanical split face -- having -- the amount of etching -- 0.1 - 30 g/m2 it is . The amount of etching is 0.1 g/m2. Dirt increases that it is the following and it is 30 g/m2. The difficulty of being involved deteriorates that it is above. especially -- desirable -- 5 - 15 g/m2 it is . Electrolysis split-face-ization of the 1st process is 50 - 600 c/dm2 in the 10-50-degree C nitric-acid electrolytic solution. It

carries out. In this case, electrolytic-solution temperature deteriorates above 10 degrees C, and the difficulty of being involved deteriorates above the increase of dirt, and 50 degrees C. It is 20-30 degrees C especially preferably. after the formation of an electrolysis split face of the 1st process -- again -- chemical etching processing -- the solution of an acid or alkali -- carrying out -- the amount of etching in this case -- 0.1 - 20 g/m2 it is . The amount of etching is 0.1 g/m2. Dirt is it increase and 20 g/m2 that it is the following. The difficulty of being involved deteriorates that it is above. especially -- desirable -- 5 - 15 g/m2 it is . Subsequently, it is electrolysis split-face-ization of a back process in the 35-80-degree C nitric-acid electrolytic solution 10 - 300 c/dm2 It carries out. Electrolytic-solution temperature deteriorates above 35 degrees C, and the difficulty of being involved deteriorates above the increase of dirt, and 80 degrees C. It is 40-70 degrees C especially preferably. after the formation of an electrolysis split face of a back process -- again -- chemical etching processing -- the solution of an acid or alkali -- carrying out -- the amount of etching in this case -- 0.01 - 2 g/m2 it is . The amount of etching is 0.01 g/m2. Dirt is it increase and 2 g/m2 that it is the following. The difficulty of being involved and print durability deteriorate that it is above. especially -- desirable -- 0.2 - 1.0 g/m2 it is . Anodic oxidation is given after the last chemical etching. Anodic oxidation passes current by using an aluminum base material as an anode plate in solution, such as a sulfuric acid, a phosphoric acid, a chromic acid, and oxalic acid, or a nonaqueous solution, and makes an anodic oxide film form in the front face of an aluminum base material. In addition, after performing each chemical etching processing at the above-mentioned process, it is desirable to perform the desmut treatment by the acid.

[0012]

[Example] Next, although an example explains this invention concretely, this invention is not limited only to this example.

(Example-1-3, example-of comparison1-2) The JIS1050-H16 aluminum rolled plate was immersed for 30 seconds by 50 degreeC into 5% caustic-alkali-of-sodium solution, and washing processing was performed. Then, they are 40degreeC-60degreeC and current density 40 A/dm2 to the inside of the solution which contains this aluminum plate a 15g [/l.] nitric acid after formation of mechanical split face, and chemical etching processing 15 g/m2, and a desmut treatment, each example, and the example of comparison, respectively. The diameter of an average pit was changed and electrolysis split-face-ized processing was carried out for 20 seconds. As a power supply wave, the square wave as shown in drawing 1 was used at that time. Next, after rinsing, in the liquid which contains 7% of aluminum concentration in caustic-alkali-of-sodium solution 25%, the portion equivalent to each edge of the pit which carried out being time immersed and which was generated by electrolysis split-face-ized processing was dissolved, and it rinsed. Next, it is current density 40 A/dm2 at the degree of considerable solution temperature which makes a 15g [/l.] nitric acid generate each diameter of the 2nd process average pit in the solution containing the aluminum concentration of 6g/l. again. Electrolytic etching was performed for 5 seconds. Thus, by making the aluminum hydroxide adhering to the front face of the obtained aluminum plate into a subject, it was immersed for 30 seconds into a 250g [/l.] sulfuric acid and solution of 50 degrees of solution temperature C, and the smut was removed and rinsed. Thus, the split-face board of the acquired examples 1-3 is 0.6 micrometers of average surface roughness, had uniform and precise double structural irregularity, and had the pit of the round shape of a small honeycomb on the big wave. Moreover, the amount of oxide films is 2.5 g/m2 to the aluminum plate obtained as mentioned above. Anodizing was performed in the solution which contains 100g /of sulfuric acids l. so that it may become. Thus, print durability was obtained in the difficulty of becoming dirty, and, as for the printing version obtained when the photosensitive layer was applied on the obtained aluminum plate and the printing version was manufactured, the good printing version was both obtained in the difficulty of being involved. Application-for-a-utility-model-patent conditions and a result are shown in Table 1.

[0013]

[Table 1]

表　　1

例	電解粗面化第1工程平均ピット径		エッチング		電解粗面化第2工程平均ピット径		エッチング		印刷性能		
	μm	液温度℃	g/m²	秒	μm	液温度℃	g/m²	秒	汚れ難さ	耐刷性	絡み難さ
比較-1	2	40	1	20	-	-	-	-	△	○△	○△
実施-1	5	30	5	100	2	40	1	20	○	○	○
実施-2	15	20	5	100	2	40	1	20	○	○	○
実施-3	25	15	5	100	2	40	1	20	○△	○	◎○
比較-2	35	10	5	100	2	40	1	20	△×	○	◎

[0014] Washing processing is performed for an aluminum rolled plate in 5% caustic-alkali-of-sodium solution like the aforementioned example. (The example -3 of comparison, example-4-6) then, the inside of the solution which contains the aluminum concentration of 6g/l. for what carried out formation of mechanical split face, and chemical etching processing 15 g/m2, and the desmut treatment in a 15g [/l.] nitric acid -- 40degreeC and current density 40 A/dm2 After rinsing next, each sample set the diameter of an average pit of the 1st process to 15 micrometers, it was immersed into liquid of 7% of aluminum concentration in 25% caustic-alkali-of-sodium solution, and the portion equivalent to the edge of the pit generated by electrolysis split-face-ized processing was dissolved, and all rinsed. Next, it is current density 40 A/dm2 at the diameters 10 and 5 of the 2nd process average pit, and each degree of considerable solution temperature which generates 1 or 0.5 micrometers in the solution contained a 15g [/l.] nitric acid again, respectively. Electrolytic etching was performed for 5 seconds. Thus, it was immersed for 30 seconds into a 250g [/l.] sulfuric acid and solution of 50 degrees of solution temperature C, and the smut which made the subject the aluminum hydroxide adhering to the front face of the obtained aluminum plate was removed and rinsed. Thus, acquired example - To Ha after etching processing, the split-face board of 4-6 is 0.8 to 1.2 times, had uniform and precise double structural irregularity, and had the pit of the round shape of a small honeycomb on the big wave. Moreover, when the photosensitive layer was applied on the aluminum plate obtained as mentioned above and the printing version was manufactured, as for the obtained printing version, print durability and the good printing version of especially the difficulty of being involved were obtained in the difficulty of becoming dirty. Experiment conditions and a result are shown in Table 2.

[0015]

[Table 2]

表　　2

例	電解粗面化第1工程平均ピット径		エッチング		電解粗面化第2工程平均ピット径		エッチング		印刷性能		
	μm	液温度℃	g/m²	浸漬時間	μm	液温度℃	g/m²	浸漬時間	汚れ難さ	耐刷	絡み難さ
比較-3	15	20	5	100	10	25	1	20	×	○	◎
実施-4	15	20	5	100	5	30	1	20	○△	○	◎○
実施-5	15	20	5	100	1	50	1	20	○	○	○
実施-6	15	20	5	100	0.5	60	1	20	◎○	○	○

[0016] (Example-7-10) The inside of the solution which contains a 15g [/l.] nitric acid after performing formation of mechanical split face, and chemical etching processing 15 g/m2, and a desmut treatment for a JIS1050-H16 aluminum rolled plate, and 40degreeC and current density 40 A/dm2 Electrolytic etching was performed for 20 seconds. As a power supply wave, the

square wave as shown in drawing 1 was used at that time. It was immersed in 90 degrees of solution C contained a 400g [/l.] after [rinsing] sulfuric acid for 120 seconds, and the portion equivalent to the edge of the pit generated by electrolysis split-face-ized processing was dissolved, and it rinsed. Next, inside of the solution contained a 15g [/l.] nitric acid again, and 40degreeC and current density 40 A/dm2 Electrolytic etching was performed for 5 seconds. The portion equivalent to the edge of the pit furthermore generated by electrolysis split-face-ized processing of the 2nd process was dissolved, and it rinsed. Next, the degree of solution temperature is changed, respectively to make each of diameters 3 and 2 of an electrolysis-among solution split-face-ized average pit which contain a 15g [/l.] nitric acid again, and 1 or 0.5 micrometers, and it is current density 40 A/dm2. Electrolytic etching was performed for 5 seconds. As after treatment after an electrolysis split-face-ized final process, they are chemical etching processing 1 g/m2 and ANODAIZU processing 2.5 g/m2. It carried out. Thus, acquired example - The rate of un-dirty after the formation of an electrolysis split face after etching processing is less than 50%, and had uniform and precise 3-fold structural ******, and the split-face liquid of 7-10 had the pit of the round shape of a small honeycomb on the big beat. Moreover, the photosensitive layer was applied on the aluminum plate obtained as mentioned above, and the printing version with which the printing version obtained when the printing version was manufactured was extremely excellent in print durability, especially the difficulty of being involved in the difficulty of becoming dirty was obtained. Experiment conditions and a result are shown in Table 3.

[0017]

[Table 3]

表 3

例	電解粗面化第1工程平均ピット径		エッチング		電解粗面化第2工程平均ピット径		エッチング		電解粗面化第3工程平均ピット径		印刷性能		
	μm	液温度℃	g/m²	浸漬時間	μm	液温度℃	g/m²	浸漬時間	μm	液温度℃	汚れ難さ	耐刷性	絡み難さ
実施-7	15	20	10	200	5	30	3	60	3	43	△	○	◎
実施-8	15	20	10	200	5	30	3	60	2	40	○△	○	◎
実施-9	15	20	10	200	5	30	3	60	1	50	○	○	◎○
実施-10	15	20	10	200	5	30	3	60	0.5	60	◎○	○	◎○

◎：優、 ○：良、 △：可、 ×：不良

[0018] The aluminum plate of JIS-1050 is used. (Example-11-20, example -4 of comparison) Mechanical split-face-ization is performed to JP,50-40047,B in rotational frequency 350rpm using the equipment of a publication. at 50 degrees C in 10% of caustic-alkali-of-sodium solution

Each chemical etching processing, The amount of anodic oxide films is 3.0 g/m2 in the 120g [/l.] sulfuric acid after carrying out on the processing conditions which show each electrolysis split-face-ization which used the electrolytic solution of 1% of nitric acids in Table 4 and performing DESUMATTO by the acid after the last chemical etching processing, and 45 degrees C of solution temperature. Anodizing was performed so that it might become. The photosensitive layer was applied on each obtained base material for the lithography versions, the lithography version was made, like the example-1 grade, the printing performance (it is [difficulty / of becoming dirty] print durability in the difficulty of being involved) was investigated, and the obtained result was shown in Table 4.

[0019]

[Table 4]

	処理条件						印刷性能		
	機械的粗面化	化学的エッチング	硝酸電解粗面化	化学的エッチング	硝酸電解粗面化	化学的エッチング	汚れ難さ	絡み難さ	耐刷性
比較例4	実施した	10 g/m²	50 ℃ 200c/dm²	2 g/m²	-	-	○	○	○
実施例11	実施した	10 g/m²	25 ℃ 400c/dm²	10 g/m²	60 ℃ 200c/dm²	1 g/m²	◎	◎○	◎○
12	〃	0.05	〃	〃	〃	〃	△	◎○	◎○
13	〃	35	〃	〃	〃	〃	◎	○△	◎○
14	〃	10	5 ℃ 400c/dm²	〃	〃	〃	○△	◎○	◎○
15	〃	〃	55 ℃ 400c/dm²	〃	〃	〃	◎	○△	◎○
16	〃	〃	25 ℃ 400c/dm²	0.05	〃	〃	○△	◎○	◎○
17	〃	〃	〃	25	〃	〃	◎	○△	◎○
18	〃	〃	〃	10	30 ℃ 200c/dm²	〃	○△	◎○	◎○
19	〃	〃	〃	〃	85 ℃ 200c/dm²	〃	◎	△	○
20	〃	〃	〃	〃	60 ℃ 200c/dm²	2.5	◎	○△	○

◎： 優　○： 良　△： 可

[0020]

[Effect of the Invention] In the manufacture method of the base material for the printing versions that this invention performs electrolysis split-face-ized processing in the middle repeatedly on both sides of etching processing of aluminum for an aluminum base material in the acid electrolytic solution By the manufacture method of the base material for the lithography versions characterized by making the diameter of an electrolysis split-face-ized average pit of a back process into 1/2 or less [of the diameter of an electrolysis split-face-ized average pit of a last process], and 1/30 or more, using the diameter of an electrolysis split-face-ized average pit of the 1st process as 2 micrometers - 25 micrometers By manufacturing what raised water retention much more and was superior to before, the outstanding thing which raised the performance much more in the difficulty of being involved was able to be manufactured. Moreover, in the manufacture method of the above-mentioned base material for the lithography versions, the base material for the lithography versions which has the further excellent property can be obtained by performing formation of a mechanical split face, and chemical etching processing before the formation of an electrolysis split face of the 1st process of the above, performing chemical etching processing after the formation of an electrolysis split face of a back

process the formation back of an electrolysis split face of the 1st process, and subsequently performing anodic oxidation. By manufacturing the lithography version from the aluminum split-face board created by this invention, especially the outstanding printing performance and the lithography version which does not have dirt nature with a performance in the difficulty of being involved can be made.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] The power supply wave form chart of the square wave of the AC power supply concerning this invention
[Drawing 2] (c) a thing, which carried out phase-angle control of the AC-power-supply wave form chart concerning this invention, (a):sine wave, and the (b):sine wave by the thyristor: Square wave

[Translation done.]